



**National
Transportation
Safety Board**

NTSB Recommendations and Fatigue Countermeasures

**Mark R. Rosekind, Ph.D.
Board Member**

**NTSB Investigating Human Fatigue Factors
September 30, 2014**

Go! Flight 1002



- early starts, multiple segment days, sleep apnea



NTSB

Honorable John K. Lauber:

No Accident \neq
Safe Operation



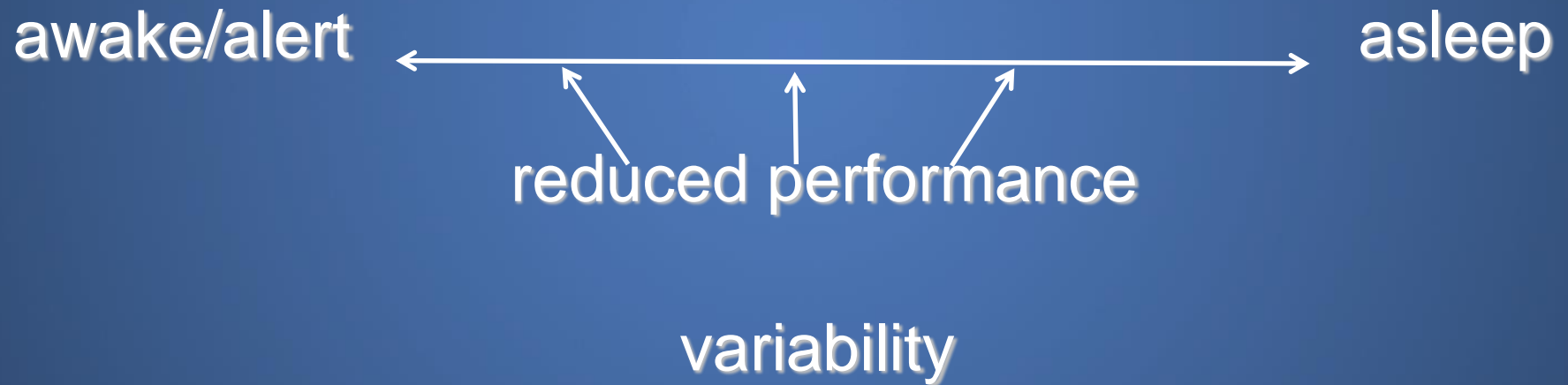
NTSB

Challenges of a 24/7 Society

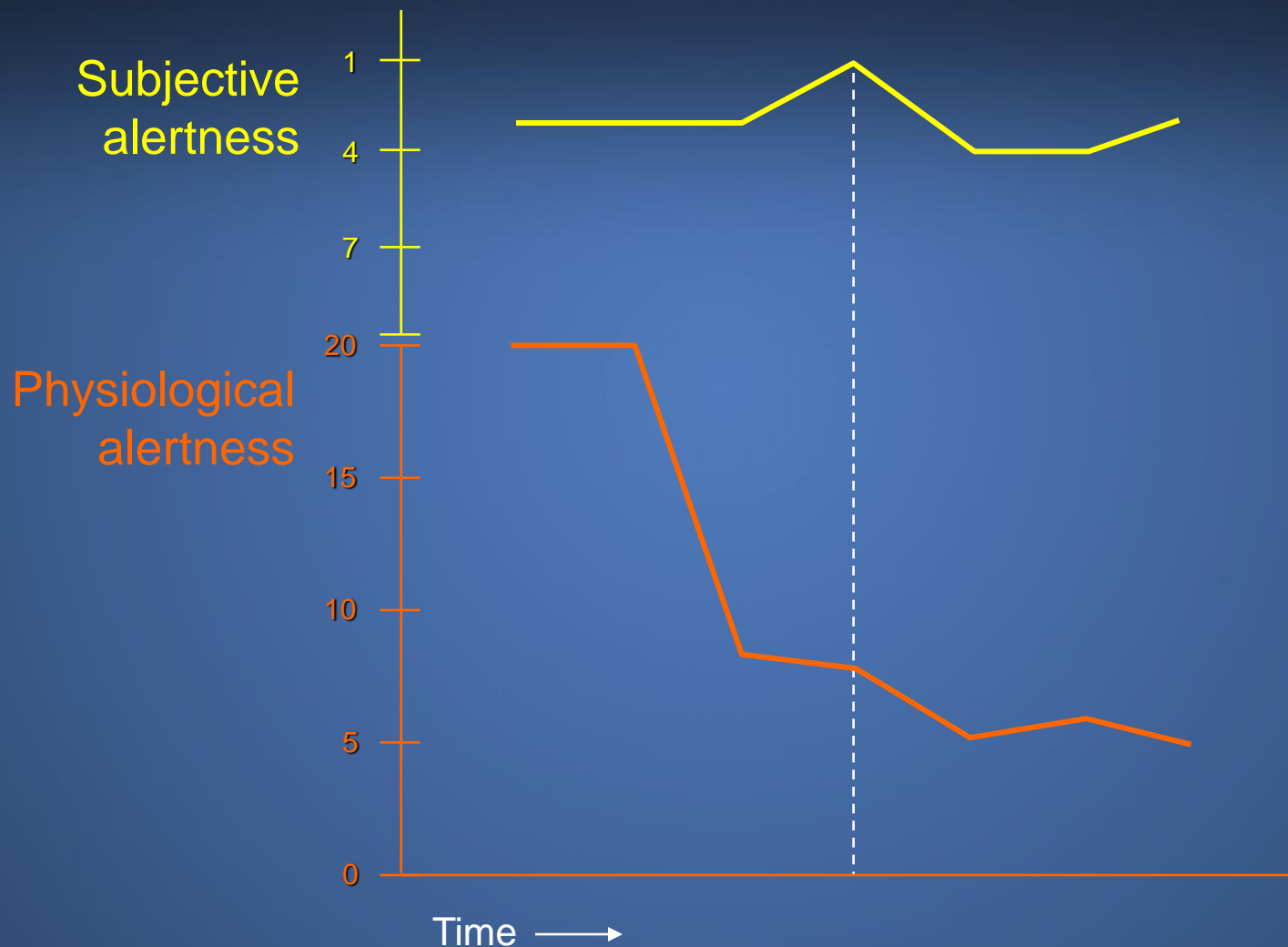


NTSB

Fatigue Risks



Alertness Reports Often Inaccurate



Adapted from Sasaki et al., 1986



NTSB

NTSB Safety Recommendations: Fatigue

- 40 years ago: May 10, 1972
- “Revise FAR 135 to provide adequate flight and duty time limitations.” (A-72-55)
- Classified “Closed-Unacceptable”





NATIONAL TRANSPORTATION SAFETY BOARD

[HOME](#) [NEWS & EVENTS](#) [TRANSPORTATION SAFETY](#) [ACCIDENT INVESTIGATIONS](#) [DISASTER ASSISTANCE](#) [LEGAL](#) [ABOUT](#)

[Home](#) > [Transportation Safety](#) > Most Wanted List

[SHARE](#) [f](#) [t](#) [e](#)

MOST WANTED LIST

A program to increase the public's awareness of, and support for, action to adopt safety steps that can help prevent accidents and save lives. The following are ten of the current issues.



Addressing Human
Fatigue



General Aviation
Safety



Safety Management
Systems



Runway Safety



Bus Occupant Safety



Pilot & Air Traffic
Controller
Professionalism



Recorders



Teen Driver Safety



Addressing Alcohol-
Impaired Driving



Motorcycle Safety



NTSB

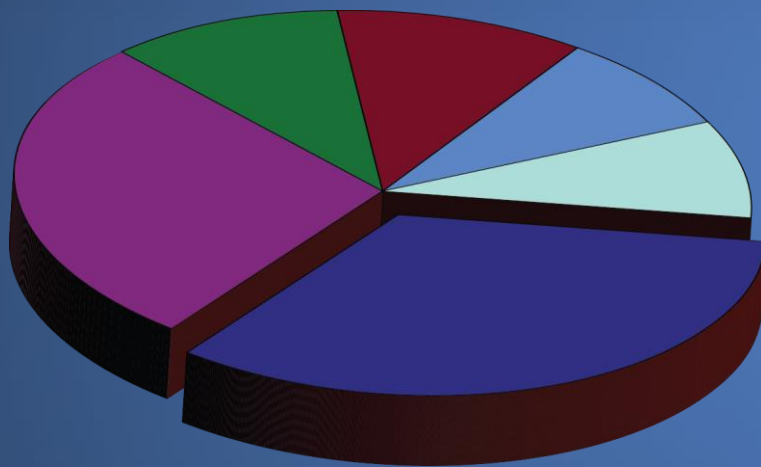
NTSB Recommendations

- MOST WANTED 1990 -2011
- >200 fatigue recommendations



Complex Issue:

Requires Multiple Solutions



- Scheduling Policies and Practices
- Education/Awareness
- Organizational Strategies
- Healthy Sleep
- Vehicle and Environmental Strategies
- Research and Evaluation



NTSB Fatigue Recommendations: Education/Strategies

- Develop a fatigue education and countermeasures training program
- Educate operators and schedulers
- Include information on use of strategies: naps, caffeine, etc.
- Review and update materials



Scheduling Policies and Practices

Victoria, Texas, January 2, 2008



Victoria, Texas Fire Department

- Day sleep, night drive, ~ 4 am WOCL



NTSB

NTSB Fatigue Recommendations: Hours of Service / Scheduling

- Science-based hours of service
- Allow for at least 8 hours of uninterrupted sleep
- Fatigue mitigation strategies in the hours-of-service regulations for passenger-carrying drivers who operate during the nighttime window of circadian low
- Reduce schedule irregularity and unpredictability



New Hours of Service Regulations In 2011: Rail, Aviation, and Trucking

brisbane
times

Train drain: new rules fight driver fatigue

February 8, 2012

**The Dallas
Morning News**

FAA issues rules to ensure that pilots get enough rest

22 December 2011

THE
HUFFINGTON
POST

**FMCSA Sets New Rules To Encourage Truck
Drivers To Get Enough Rest**

01/20/12



NTSB

Air Cargo Operations Excluded in New 2011 Pilot Rules

FOR IMMEDIATE RELEASE

Date: December 21, 2011

FAA Issues Final Rule on Pilot Fatigue

WASHINGTON, D.C. —

“Covering cargo operators under the new rule would be too costly compared to the benefits generated in this portion of the industry.”

Chicago Tribune

Breaking News, Since 1847

FAA's new pilot fatigue rules aim to put concerns to rest

Safeguards, including minimum rest periods, will be phased in, don't apply to cargo pilots



NTSB

Sleep Apnea

Mexican Hat, UT, January 6, 2008



- 360 rollover, 50/53 ejected, 9 fatalities, OSA (-CPAP)



NTSB

NTSB Fatigue Recommendations: Sleep Apnea/Health Related

- Develop standard medical exam to screen for sleep disorders; require its use
- Educate companies and individuals about sleep disorder detection and treatment, and the sedating effects of certain drugs
- Ensure drivers with apnea are effectively treated before granting unrestricted medical certification



Owatonna, MN (July 31, 2008)



8 fatalities



NTSB

Owatonna, MN (July 31, 2008): Safety Recommendations

7. Revise regulations and policies to permit appropriate use of prescription sleep medications by pilots under medical supervision for insomnia.
9. Review the policy standards for all common sleep-related conditions, including insomnia, and revise them in accordance with current scientific evidence to establish standards under which pilots can be effectively treated for common sleep disorders while retaining their medical certification.

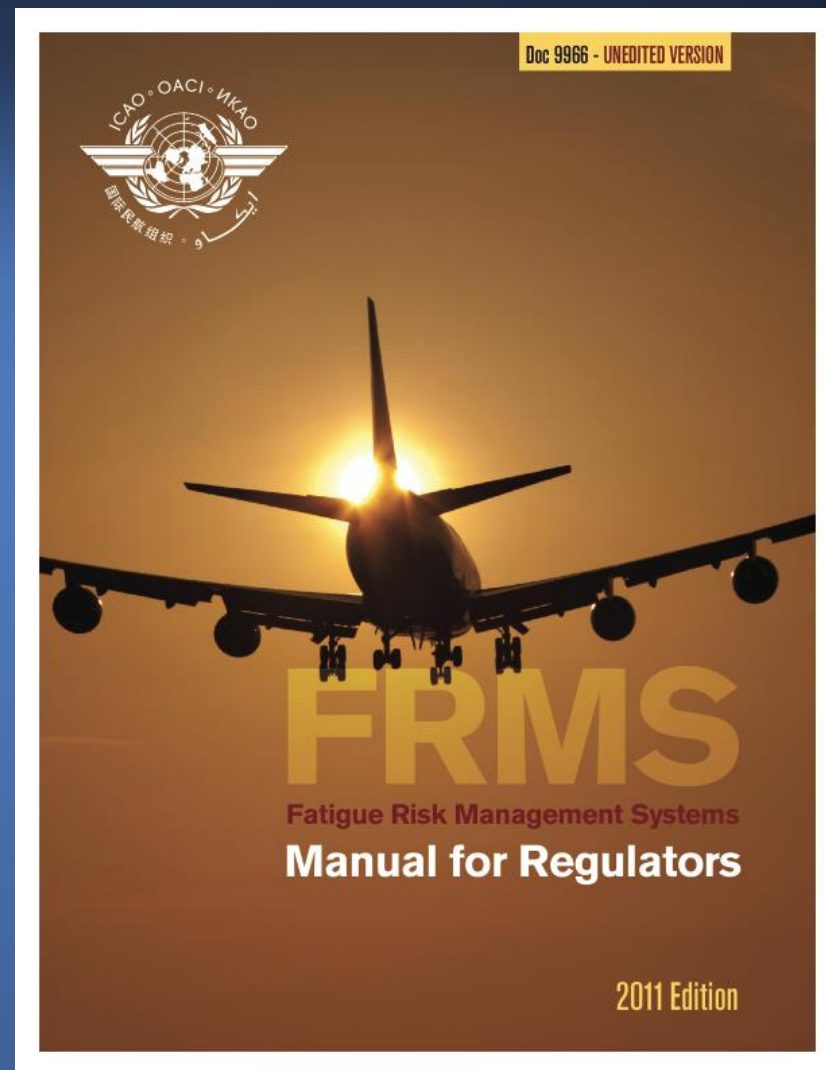
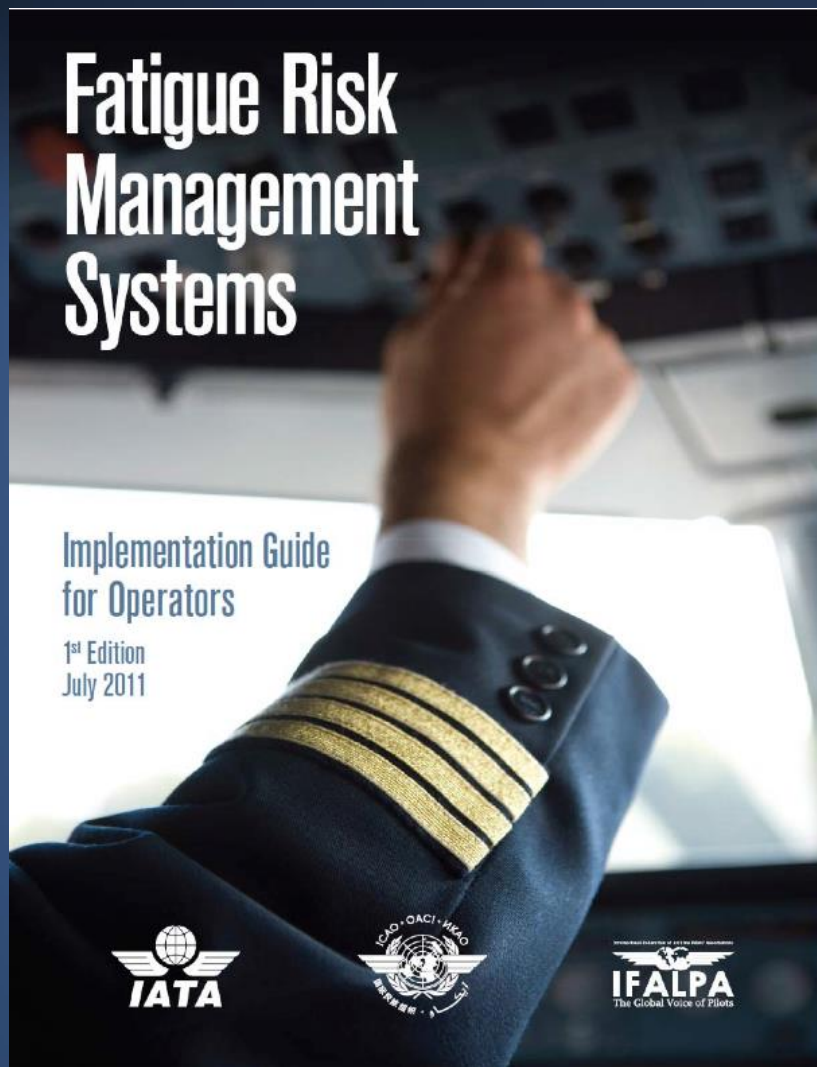


NTSB Fatigue Recommendations: Fatigue Management Systems

- Develop guidance based on empirical and scientific evidence for operators to establish fatigue management systems
- Establish an ongoing program to monitor, evaluate, report on, and continuously improve fatigue management programs implemented by motor carriers to identify, mitigate, and continuously reduce fatigue-related risks for drivers.



Examples



NTSB

NTSB Safety Recommendations: Fatigue Status (May, 2012)

- Total: 194
- Open: 48
- Closed: 146
- CUN*: 26

CUN = closed unacceptable



NTSB

Manage Fatigue = Enhance Safety

- Culture change
- Get educated
- Acknowledge risk
- Take action!



Good sleep, safe travels.



NTSB



National Transportation Safety Board